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Submission date: 25-Jan-2019 10:40AM (UTC+0700)
Submission ID: 624024364
File name: does_matter_An_empirical_evidence_from_hospitality_industry.pdf (322.54K)
Word count: 3665
Character count: 20343

2016 11th International Conference on Knowledge, Information and Creativity Support Systems (KICSS), Yogyakarta, Indonesia

IS/IT Strategy Does Matter: An Empirical Evidence From Hospitality Industry

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***Abstract*—The hospitality industry in Indonesia continues to experience growth from year to year. Along with this development, the use of information technology, which is the basis of the information system, should be considered as a very useful tool to survive in the competition in the hospitality industry. Previous studies have widely discussed the role of information systems at the strategic level. Including the assertion of Nicholas Carr that is "IT Doesn't Matter". This assertion need to be tested by the extent to which the maturity of the use of information systems through its elements could affect the company's strategic performance measured from the five perspective of Kaplan's Business Balanced Scorecard in the hospitality sector in Indonesia. The study was conducted by distributing questionnaires to managers of 3 stars hotels in Jakarta. Data obtained was further analyzed using multiple regression analysis. This study verifies that the maturity of information systems in general have a significant relationship with organizational performance both financial and non-financial. The contribution shows from 30 % to 60 %, contrary to the Carr's assertion of no strategic contribution of IT on the companies.**

Keywords—IS/IT strategy, Competitiveness, Hospitality Industry

I. INTRODUCTION

The hospitality industry in Indonesia continues to experience growth from year to year. It is characterized by the growth in the number of hotels that became a mean of accommodation for both domestic and foreign tourists who came to Indonesia [1]. Along with this development, the use of information technology—which is the basis of the information systems—should be considered as a very useful tool to survive in the competition in the hospitality industry. According to DiPietro and Wang [2], information technology changes rapidly or increased from time to time so many hotels invest money big enough to ensure that they have the latest technology. This is supported by Buhalis& Law's study which found that the hospitality industry who can respond to IT application innovations efficiently and effectively to support their business, can outperform its competitors and maintain long-term progress [3].

With the increasing number of hospitality companies that use or plan to use applications to support the business management of hotels, the awareness of issues relating to information will continue to grow, such as the paradox of productivity of information technology (IT), how can IT deliver business values, and how IT can provide competitive advantages [4]. Carr [5] states that, because IT is increasingly becoming a commodity, no company will gain a competitive advantage by leveraging IT. But some experts do not think so. Tian et. al. [6] found that the business and IT alignment that is mediated by the flexibility of the IT strategy has a positive impact on the company's competitive advantage. The competitive advantage as a result of this strategy is proven to have a positive impact on company performance [7]. Several other studies also have shown a positive relationship between information systems in strategic level with the performance of various industrial sectors [8],[9],[10].

Various studies related to the use of information systems and their role at the strategic level has been done, but the majority of previous studies discuss about the retail and manufacturing companies and focus on the implementation process of aligning business strategy with IS/IT. Similar studies have not examine the maturity level of information systems at the strategic level more deeply in relation to the performance of the organization, particularly in the hospitality industry in Indonesia. Therefore, the purpose of this study is to ascertain whether there is a significant positive relationship between the maturity of information systems and its elements with the performance of the hospitality industry—financially and non financially—in Indonesia.

The concept of information systems maturity is no longer a new concept, it has been frequently used in the study of information technology and information systems. It is conceptually based on a maturity model as a general framework to describe the level of perfection achieved in a particular field [11]. One way to determine how the level of IS/IT to business strategy is to conduct an assessment with a model called the Business Value Maturity ModelTM[12]. There are nine elements assessed in this model which are: the strategic demand/supply planning, innovation, prioritization, alignment, performance measurement, strategy to bottom-line

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value chain, IT impact management, portfolio management, and culture management. According to Neely [13] the framework of the Balanced Scorecard (BSC)—which comes from early studies of Kaplan and Norton (1996)—is most suited to the hospitality industry. Balanced Scorecard proved to be a powerful tool that can inform managers about: the things that worked or not within the company, what should be improved immediately and what should be prioritized, and the need for strategic management in managing internal business processes to drive innovation and learning [14]. Therefore, the BSC concept is used to measure the performance of companies in this study that is a measurement of competitiveness.

II. RESEARCH METHODS

This research used primary data collected using questionnaire. In this study, a questionnaire will be given to the respondents in the study population. Questionnaires distributed in 2 ways: by email and delivered directly to the hotel. Questionnaires are presented in 2 ways by using an online survey tool from Google and printed form which can be selected by the respondents.

The measurement used in this study was an interval scale with data measurement techniques of Likert Scale. For the assessment of the independent variables, Likert scale is representing each maturity level at business value maturity model, while the dependent variable was assessed using a Likert scale of agreement or disagreement of the respondents.

The method used for data analysis was multiple linear regressions. There are several stages of data analysis, which are: residual normality test, model test. Normality test was used to determine if the collected data are normally distributed. Model test was conducted to determine coefficient of determination and determine partially if one of the independent variables significantly related with dependent variable. The tool used for data analysis was software SPSS AMOS version 20. The following are mathematical equations/model that will be tested based on the theoretical framework proposed in Figure 1:

$$FIN = \beta_{10} + \beta_{11}DS + \beta_{12}IN + \beta_{13}PR + \beta_{14}AL + \beta_{15}PM + \beta_{16}ST + \beta_{17}IM + \beta_{18}PP + \beta_{19}CM + \varepsilon_1 \quad (1)$$

$$GUR = \beta_{20} + \beta_{21}DS + \beta_{22}IN + \beta_{23}PR + \beta_{24}AL + \beta_{25}PM + \beta_{26}ST + \beta_{27}IM + \beta_{28}PP + \beta_{29}CM + \varepsilon_1 \quad (2)$$

$$ELG = \beta_{30} + \beta_{31}DS + \beta_{32}IN + \beta_{33}PR + \beta_{34}AL + \beta_{35}PM + \beta_{36}ST + \beta_{37}IM + \beta_{38}PP + \beta_{39}CM + \varepsilon_1 \quad (3)$$

$$IPQ = \beta_{40} + \beta_{41}DS + \beta_{42}IN + \beta_{43}PR + \beta_{44}AL + \beta_{45}PM + \beta_{46}ST + \beta_{47}IM + \beta_{48}PP + \beta_{49}CM + \varepsilon_1 \quad (4)$$

where:

FIN	: Financial Performane
GUR	: Guest Relationship Performance
ELG	: Employee Learning and Growth Performance
IPQ	: Internal Process Quality
DS	: Demand/Supply Planning
IN	: Innovation
PR	: Prioritization
AL	: Alignment
PM	: Performance Measurement
ST	: Strategy to Bottom Line Value Chain
IM	: IT Impact Management
PP	: Portfolio Management
CM	: Culture Management
ε	: error

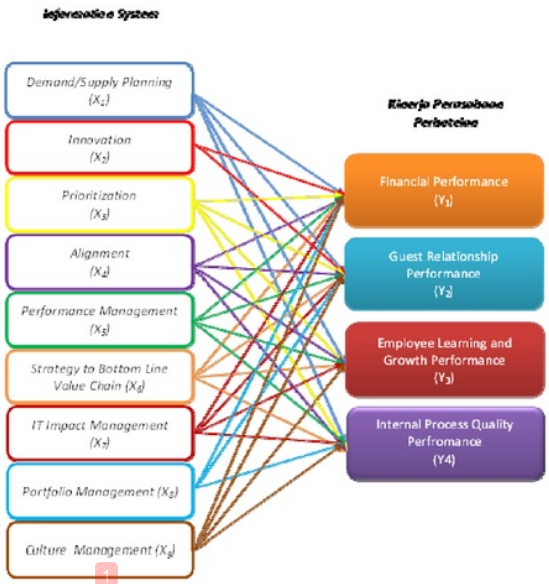

Fig. 1. Model of the relationship among variables in the research

III. RESULTS AND DISCUSSION

A. Normality Test

The following are the results of normality test that was conducted on the collected data.

Based on the result that significant value = 0.065, which is bigger than 0.05, it can be concluded that the data of the first multiple regression models on Financial Performance are normally distributed.

Based on the result that can be seen in table 2, significant value = 0.340, which is bigger than 0.05, so it can be concluded that the data of the first multiple regression models on Guest Relationship Performance are normally distributed.

Based on the result that can be seen in table 3, significant value = 0.075 which is bigger than 0.05, so it can be concluded that the data of the first multiple regression models on Employee Learning and Growth Performance are normally distributed.

Based on the result that can be seen in table 4, significant value = 0.056 which is bigger than 0.05, so it can be concluded that the data of the first multiple regression models on Internal Process Quality are normally distributed.

B. *Coefficient of Determination*

The coefficient of determination in linear regression can be defined as how far the ability of the model to explain variations in the dependent variable or the extent to which all independent variables can explain the variance of the dependent variable.

The result of the data analysis on Financial Performance indicated that the value of Square Multiple Correlations = 0.374. This means that 37.4% of the variance of financial performance can be explained by changes in the independent variables while the remaining 62.6% is explained by other variables outside the model. This also means that the competitiveness from financial perspective almost 40% is dependent on IT.

Similarly, the value of Square Multiple Correlations for Performance with guest relation is 0.528. This value indicates that 52.8% of the variance of performance with guest relations can be explained by changes in the independent variables while the remaining 47.2% is explained by other variables outside the model. In terms of competitiveness, contribution of IT on guest relation perspective of the balanced score card is almost 53 %. This is in general is correct, because guest relations usually heavily dependent on IT.

From employee learning and growth perspective, the result shows that the value of Square Multiple Correlations is 0.567. This value indicates that 56.7% of the variance employee learning and growth performance can be explained by changes in the independent variables while the remaining 43.3% is explained by other variables outside the model. This value also indicates competitiveness measured from internal growth and learning is 57 % dependent on IS/IT in the hospitality industry.

The result from the internal and operational perspective indicates that the value of Square Multiple Correlations is 0.567. This value indicates that 56.7% of the variance of performance quality of internal processes can be explained by changes in the independent variables while the remaining 43.3% is explained by other variables outside the model. This also says that IS/IT contributes almost 57 % toward competitiveness of companies in the hospitality industry.

C. *Hypothesis Testing*

From the hypotheses testing analysis it was found that on the financial performance perspective, the most contributing aspects of the IS/IT are from the perspective alignment and innovation as can be seen from the P-value having the smallest value (Table 1).

TABLE I. REGRESSION WEIGHTS RESULT FOR THE MODEL OF FINANCIAL PERFORMANCE

		Estimate	S.E.	C.R.	P
FIN	<--- DS	-.123	.175	-.703	.482
FIN	<--- IN	.287	.192	1.493	.136
FIN	<--- PR	-.111	.127	-.876	.381
FIN	<--- AL	.392	.117	3.340	***
FIN	<--- PM	-.037	.159	-.236	.814
FIN	<--- ST	-.066	.224	-.294	.769
FIN	<--- IM	-.181	.209	-.865	.387
FIN	<--- PP	-.117	.214	-.548	.584
FIN	<--- CM	.057	.152	.375	.708

This result is in line with the research that was done by Yayla&Hu [15] and Moh. Faryabi et. al. [16] which prove that the alignment process has a positive and significant relationship with organizational performance. Benefit from the alignment of IT with business strategy is critical to the success of any organization. Thus it can be said that the higher the maturity level of the strategy alignment process/IT with business strategy increasingly have a positive impact on the financial performance of the hotel industry.

The result indicates that IS/IT strategic aspects that significantly contributed to the competitiveness of the company in terms of guest relationship performance are alignment, strategy to bottom line value chain, and culture management process which can be seen in Table 2.

TABLE II. REGRESSION WEIGHTS RESULT FOR THE MODEL OF GUEST RELATIONSHIP PERFORMANCE

		Estimate	S.E.	C.R.	P
GUR	<--- DS	-.138	.134	-1.032	.302
GUR	<--- IN	-.109	.147	-.739	.460
GUR	<--- PR	.048	.097	.496	.620
GUR	<--- AL	.284	.090	3.164	.002
GUR	<--- PM	.105	.121	.862	.389
GUR	<--- ST	-.630	.171	-3.681	***
GUR	<--- IM	.016	.160	.099	.921
GUR	<--- PP	.134	.164	.821	.412
GUR	<--- CM	.289	.116	2.490	.013

This result is in line with the study that was done by Cragg et. al. [17] which found a significant positive relationship between the performance of the company with the alignment of IS / IT and with culture management [18], but contrary to the result study of Sirbel [19] that was found positive relationship between integration business strategy to bottom line. We can also see that this is in line with hospitality industries as the three aspects of IS/IT, namely alignment, strategy to bottom line value creation, and culture management process certainly related closely to competitiveness in the hospitality industry.

From the growth Performance perspective of the competitiveness balanced score card, the IS/IT aspects that has significant contribution are demand/supply planning, innovation, alignment, and culture management process as can be seen under the P-value (Table 3).

TABLE III. REGRESSION WEIGHTS RESULT FOR THE MODEL OF EMPLOYEE LEARNING AND GROWTH PERFORMANCE

			Estimate	S.E.	C.R.	P
ELG	<---	DS	-.331	.111	-2.992	.003
ELG	<---	IN	.262	.121	2.161	.031
ELG	<---	PR	-.093	.080	-1.163	.245
ELG	<---	AL	.359	.074	4.860	***
ELG	<---	PM	-.026	.100	-.264	.791
ELG	<---	ST	-.136	.141	-.961	.336
ELG	<---	IM	-.047	.132	-.360	.719
ELG	<---	PP	-.149	.135	-1.104	.269
ELG	<---	CM	.178	.096	1.859	.063

If we see from significant value that was obtained, this result is in line with some previous studies which found that significant relationship between employee performance and demand/supply process [20], innovation process [21], and alignment process [1].

The following is the result of regression model testing for the model of internal process quality performance that was conducted.

TABLE IV. REGRESSION WEIGHTS RESULT FOR THE MODEL OF EMPLOYEE LEARNING AND GROWTH PERFORMANCE

			Estimate	S.E.	C.R.	P
IPQ	<---	DS	-.163	.124	-1.313	.189
IPQ	<---	IN	-.270	.136	-1.983	.047
IPQ	<---	PR	-.002	.090	-.024	.981
IPQ	<---	AL	.161	.083	1.941	.052
IPQ	<---	PM	.366	.113	3.246	.001
IPQ	<---	ST	-.526	.159	-3.311	***
IPQ	<---	IM	.409	.148	2.764	.006
IPQ	<---	PP	.082	.152	.541	.588
IPQ	<---	CM	-.051	.107	-.475	.635

Based on the regression test results presented in the table 4, variables or IS/IT aspects that have p-value lower than 0.05 are innovation, performance management, strategy to bottom line value chain, and IT impact management process which have significant relationship with internal process quality performance. This result is consistent with previous studies that was done by Rosli&Sidek[22] and Salim &Sulaiman [23] which state that innovation significantly related to internal process performance, Sandt& Hoffman [24] which found positive and significant relationship between performance management process with firm performance, Ohlsson et. al. [25] which state that process integrating strategy to bottom line will increase the quality of business processes, and Boonmak[26] which found that management of IT impact has positive and significant relationship.

On the other hand, the regression coefficient shows that innovation and strategy to bottom line value chain process have negative value which mean has negative impact to firm performance. This result is contrary with the prediction. But in relation to this research,, this result can shows that most of the respondent (hotel manager) have not fully matured in the process but the company still able to maintain its performance improvement due to the availability of IS/IT that is still capable of supporting operational processes.

IV. CONCLUSION

Based on the calculation of the coefficient of determination of each dependent variable performance of the company, it is found that the elements of maturity of information systems represent 37.4% of variance financial performance, 52.8% of the variance of performance relationship with the guests, as well as 56.7% of learning and growth performance employees and the performance quality of internal processes, and 56.7 % variances in the internal and operational perspective explained or contributed by IS/IT. From these results, it can be concluded that certain elements of the maturity of information systems can contribute to the performance at the level of strategic companies, especially companies in the field of hospitality services in Indonesia.

In other words, the use of information systems in the hospitality industry is not solely a commodity resources for hotel industries, but can provide advantages for companies to be able to compete with competitors, which are judged by the improvement of the performance of the company both financially and non-financially, even though not completely 100%.

This invention differs from the results of research Carr (2003), though not completely contradictory. Thus, it can be said that Carr opinion is not entirely true because the results obtained coefficient of determination is greater than 0%, but the opinion Carr is also not completely wrong, because the coefficient of determination is less than 100%.

Based on the research that has been conducted, some of information system maturity element significantly related to hospitality performance. Thus, we can concluded that IT still has a strategic role for companies or still important. Therefore, it recommended to always applying the management process of IT in the companies in order to become more mature in managing IS/IT.

This study certainly contains limitations. Therefore, further research is needed, especially be focused on the negative relationship is obtained. In addition, can also be done similar studies in different industrial sectors by improving the various components of research that has been used.

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